AMENDMENTS TO THE SPECIFICATION

The following amendments to the specification are made relative to the English-language specification orginally filed for the present non-provisional application on September 14, 2000.

Please replace the paragraph beginning on page 1, line 5, with the following rewritten paragraph:

The present invention relates to compositions containing a blend of chlorinated vinyl resins (such as polyvinyl chloride) and cellulosic materials (such as wood flour) which have excellent melt flow and melt strength for forming foamed and unfoamed extrudates having a high quality appearance. More specifically, the present invention relates to particular compositions of chlorinated vinyl resins, thermal stabilizers, lubricants, high molecular weight ("MW") polymer processing aids, and a relatively high amount (greater than about 24 weight percent total) of cellulosic materials which form free flowing powders. Such compositions are readily extruded and can be formed into various foamed and unfoamed composite articles used in various applications, including building and construction products, such as fencing, siding, decking, window frames, sills, and doors. The present invention also relates to processes for preparing powder mixtures of such blend compositions which are readily extruded and thereby overcome the problems of pre-drying or pelletization as currently practiced. The present invention relates to a process for preparing free-flowing powders wherein up to 25 weight percent of the total added components can initially be water. The present invention also relates to a process for preparing foamed extrudates having an increased expansion ratio. Furthermore, the present invention relates to composites containing the compositions of the present invention.

Please replace the paragraph beginning on page 2, line 22, with the following rewritten paragraph:

Similarly, it is known to simply add WF to a typical PVC formulation. This results in the total weight percentages of several key components (lubricants, high MW polymer processing aids and blowing agent) being considerably reduced as the amount of WF is increased. When this occurs, we have observed that process performance is greatly reduced.

Please replace the paragraph beginning on page 2, line 27, with the following rewritten paragraph:

We have heretofore discovered that in order to provide powder blends of a chlorinated vinyl resin (e.g., PVC) and a cellulosic material (e.g., WF) which are readily processable into foam extrudates having good appearance, it is important to maintain the weight percentages of the total lubricants and total high MW polymer processing aids based on the total blend composition at a level commensurate with that of a standard PVC foam formulation not containing WF. Therefore, as the amounts of cellulosic materials are increased, a concomitant increase in total lubricants and processing aids is required. The compositions and the process for preparing these powder compositions described herein contain a high weight percentage of cellulosic materials (hereinafter "CM"), greater than or equal to 24 percent by weight and at least one chlorinated vinyl resin (hereinafter "CVR"). These compositions not only are directly extrudable (and therefore do not require first pelletization of the composition or pre-drying of the cellulosic material component), but also provide extrudates having a good appearance. Until now, such compositions and processes have been heretofore unknown.

Please replace the paragraph beginning on page 3, line 30, with the following rewritten paragraph:

In the present invention, the problem of providing an extrudable chlorinated vinyl resin / cellulosic material (hereinafter "CVR/CM") powder composition containing greater than or equal to 24 weight percent of a cellulosic material is solved generally by ensuring that the total weight fractions of lubricants and high MW polymer processing aids does not decrease as the amount of cellulosic material is added to the composition. Specifically, the present invention provides that total weight percentage of total lubricants in the powder compositions remains between about 1.5 and 5 percent, and the total weight percentage of high MW polymer processing aids remains between about 3.5 and 15 percent as the total weight percentage of cellulosic material is varied between 24 and 65 percent. Additionally, the present invention provides a process for preparing extrudable chlorinated vinyl resin/cellulosic blend powder compositions which are free-flowing powders that are readily extrudable into foamed and nonfoamed articles. The present invention also provides a process for preparing such powder blends including one ore more blowing agents for foamed extrudates, wherein an excess of up to 25 weight percent water may be provided during the addition of the blend components which is otherwise deleterious to the proper functioning of the blowing agents. The present invention also provides a process for preparing a foamed extrudate wherein the surface of the expanding extrudates are hardened with a cooling fluid to increase the expansion ratio of the foamed extrudate. The present invention also provides a composite comprising a substrate layer comprising an extrudable thermoplastic resin, and at least one capstock layer disposed thereon comprising the extrudable free-flowing powder blend compositions of the present invention.

Please replace the paragraph beginning on page 4, line 27, with the following rewritten paragraph:

(d) from 3.5 to 15 weight percent of at least one high molecular weight polymer processing aid; and

Please replace the paragraph beginning on page 5, line 4, with the following rewritten paragraph:

(d) from 5 to 10 weight percent of at least one high molecular weight polymer processing aid;

Please replace the paragraph beginning on page 5, line 15, with the following rewritten paragraph:

(d) from 3.5 to 15 weight percent of at least one high molecular weight polymer processing aid; and

Please replace the paragraph beginning on page 5, line 27, with the following rewritten paragraph:

(d) from 5 to 10 weight percent of at least one high molecular weight polymer processing aid;

Please replace the paragraph beginning on page 6, line 21, with the following rewritten paragraph:

(d) from 5 to 10 weight percent of at least one high molecular weight polymer processing aid;

Please replace the paragraph beginning on page 7, line 14, with the following rewritten paragraph:

It has now been found that a particular combination of chlorinated vinyl resins, thermal stabilizers, lubricants, high MW polymer processing aids, and cellulosic materials is capable of providing powder blend compositions having a high weight percentage of cellulosic materials which are extrudable into foamed and nonfoamed extrudates having good surface appearance. The powder blend compositions of the present invention have from 30 to 65, preferably from 35 to 60, most preferably from 40 to 55 weight percent of at least one chlorinated vinyl resin; from 0.25 to 5, preferably from 0.5 to 3, most preferably from 0.5 to 1.5 weight percent of at least one thermal stabilizer; from 1.5 to 5, preferably from 1.5 to 4, most preferably from 1.5 to 3 weight percent of at least one lubricant; from 3.5 to 15, preferably from 4 to 12, most preferably from 5 to 10 weight percent of at least one high MW polymer processing aid; and from 24 to 65, preferably from 30 to 60, most preferably from 34 to 52 weight percent of at least one cellulosic material.

Please replace the paragraph beginning on page 10, line 8, with the following rewritten paragraph:

Suitable high MW polymer processing aids useful in the present invention include polymers and copolymers containing vinyl aromatic, (meth)acrylonitrile, and /or alkyl (meth)acrylate monomers, having a molecular weight greater than 50,000 g/mol, preferably greater than 500,000 g/mol, and most preferably greater than 5,000,000 g/mol. Copolymers containing a majority of methyl methacrylate ("MMA") and a minority of alkyl acrylates, such as ethyl acrylate, butyl acrylate, or 2-ethyl hexyl acrylate are preferred. In this invention, core-shell-type processing aids that combine an external lubricant functionality with that of processing aid functionality are also useful as high MW polymer processing aids.

These "lubricating-processing aids" provide the typical processing-performance properties of acrylic processing aids, but have the added advantage of an external-lubricant function, which improves flow and machine running time by significantly reducing sticking of the molten chlorinated vinyl resin to hot metal surfaces of the processing equipment. Commercially available high MW polymer processing aids are available from the Rohm and Haas Company, Philadelphia, PA under the tradename PARALOID.

Please replace the paragraph beginning on page 11, line 25, with the following rewritten paragraph:

For example, wood flour containing up to 15 weight percent water may also be used in the present inventions. The extrudable free-flowing powder blend compositions of the second aspect of the present invention have from 40 to 55 weight percent of at least one PVC resin; from 0.5 to 1.5 weight percent of at least one thermal stabilizer; from 1.5 to 3 weight percent of at least one lubricant; from 5 to 10 weight percent of at least one high MW polymer processing aid; from 34 to 52 weight percent of at least one wood flour; from 3 to 15 weight percent of at least one mineral filler; and up to 3 weight percent of at least one blowing agent.

Please replace the paragraph beginning on page 12, line 3, with the following rewritten paragraph:

Suitable PVC resins, thermal stabilizers, lubricants, high MW polymer processing aids, and wood flour for the second aspect of the present invention are described above.

Please replace the five (5) consecutive paragraphs beginning on page 16, line 23, and ending on page 18, line 18, with the following rewritten five (5) consecutive paragraphs:

The process of preparing CVR/CM powders according to the present invention further allows the introduction of water-based dispersions of the various components such that up to 25 weight percent of the total components introduced into the process can be water. Components supplied as water-based dispersions include high MW polymer processing aids, optional impact modifiers, thermal stabilizers, CVR, CM, fillers, lubricants, pigments, etc. Components preferably supplied as water-based dispersions include high MW polymer processing aids and optional impact modifiers because they are typically prepared as water-based dispersions using emulsion polymerization techniques.

High MW polymer processing aids and impact modifiers are commonly made in emulsion form, then isolated to powders, for example by coagulation or spray-drying. These isolation steps involve additional time and money for processing, and often result in product yield losses. Blending and processing of these components in emulsion form rather than powder form can be most advantageous as certain emulsions can be very difficult and/or expensive to isolate as powders. Typically, such components contain from 30 to 80 weight percent water when prepared as emulsions, which can be sufficiently removed according to a process according to the present invention. Equipment useful in powder blend processing include blenders, extruders or kneaders which can remove moisture from powder blends.

The addition of water-based dispersions of high MW polymer processing aids and/or impact modifiers provide equivalent results when compared to adding these components in powder form, with other components used in the amounts and modes of preparation as described herein. Thermokinetic blenders are preferably used to remove moisture from these blends. Typically 80-90 % of the moisture can be removed with no adverse effects and the powder properties (e.g. funnel flow and loose bulk density). Suitable equipment is available from Henschel Mixers America, Inc. (Houston, Texas). The introduction of certain

components as water-based dispersions provide composite blend powders similar to that obtained with the equivalent components added in powder form. Similarly, these water-based dispersions when added according to the process of the present invention provide foam densities which are desirably low and good extrusion performance (i.e., power draw and output rates are satisfactory and comparable to that observed for addition of components in powder form).

The process of blending the various components (e.g., CVR, CM, thermal stabilizers, lubricants, high MW polymer processing aids, mineral fillers, blowing agents, and optional impact modifiers) generally involves blending the various components in suitable equipment, mixing and heating the blend to at least 50°C, preferably above 80°C, and most preferably above 100°C, and reducing moisture content in the final powdered blend to below three, preferably below two, and most preferably below one weight percent. Although the process is generally designed to reduce moisture, the step of removing moisture during the blending is not required if the components are dry or predried before blending. Various sequences of adding, heating and mixing the various components are sufficient for preparing powder blend compositions that are extrudable and provide smooth foamed and unfoamed extrudates.

A preferred component blending sequence (i.e., "blend cycle") is wherein the CM is added after the temperature is increased above 70°C, preferably above 85°C, and after thermal stabilizer is added to the CVR and optional blowing agents to form a first blend. Thermal stabilizers are preferably mixed with CVR in the first blend to ensure that it is absorbed preferably in the CVR, and less so within the CM where its effectiveness would be reduced. The pre-stabilized CVR could then be added with the CM at the ambient blender temperature. Lubricants, high MW polymer processing aids, and mineral fillers are subsequently added, mixed and heated. Moisture is vented to reduce the moisture content. This process provides for the lowest residual powder moisture contents and the lowest foam densities (when optional blowing agents are used) compared to similar processes wherein the CM is added at the beginning or at the end of the blend cycle.

Please replace the two (2) consecutive paragraphs beginning on page 19, line 10, and ending on page 19, line 17, with the following rewritten two (2) consecutive paragraphs:

Lubricants are preferably added after the CM is added and after the temperature is increased above 60°C, preferably above 80°C. High MW polymer processing aids are preferably added subsequent to the lubricants. For providing powders having good flow properties, optional mineral fillers are preferably blended after the lubricants and high MW polymer processing aids.

It is also possible to first mix water-based components, such as aqueous dispersions of high MW polymer processing aids, with the CM, and subsequently or simultaneously removing water, prior to adding the other components.

Please replace the paragraph beginning on page 23, line 27, with the following rewritten paragraph:

Preferred extrudable thermoplastic resins used as the substrate layer in the composites of the present invention include PVC, CPVC, high impact polystyrene (HIPS), polypropylene (PP) and acrylonitrile-butadiene-styrene resins (ABS) and styrene-acrylonitrile resins (SAN). Preferably, the capstock layer is a PVC/WF blend according to the present invention containing from 40 to 55 weight percent of at least one PVC resin, from 0.5 to 1.5 weight percent of at least one thermal stabilizer, from 1.5 to 3 weight percent of at least one lubricant, from 5 to 10 weight percent of at least one high MW polymer processing aid, from 34 to 52 weight percent of at least one wood flour, from 3 to 15 weight percent of at least one mineral filler, and up to 3 weight percent of at least one blowing agent.

Please replace the two (2) consecutive paragraphs beginning on page 24, line 10, and ending on page 25, line 4, with the following rewritten two (2) consecutive paragraphs:

A blending scheme (which is described below) has been developed which provides adequate mixing and moisture removal without any additional processing steps. The procedure allows cellulosic materials (e.g., wood flour) to be added with a moisture content up to about 7% that results in a powder blend composition having a moisture content of less than about 0.5%. By following this blending sequence, wherein the lubricants are added after adding the CVR and CM, but before adding the high MW polymer processing aid powder, the amount of dust is reduced and the blend mixes more uniformly than if the lubricants were added after the high MW polymer processing aid powder.

CVR resin is placed into a Henschel high speed blender. Optional blowing agent is mixed by hand using a spatula into the CVR resin. The blender agitation is started on low speed and (optionally) heat is applied. The thermal stabilizer is added when the temperature reaches about 50°C. Subsequently, the blender agitation speed is increased. The blender agitation is stopped when the temperature reaches about 90°C, at which point CM is added. After adding the CM the temperature will be reduced to about 50°C at which point the blender agitation is restarted at low speed. The window on the blender lid is opened. The blender is vented using an exhaust ventilation hose near the opened window to pull away any escaping water vapor. The lubricants are gradually added and the powder blend is allowed to reach about 100°C. This temperature is maintained while removing water vapor. The temperature begins to increase when most of the moisture has been removed. At this point, the high MW polymer processing aids and optional impact modifiers are gradually added, followed by gradually adding the optional pigments and fillers. The powder blend is heated to about 110°C to ensure that the moisture content is less than about 0.5 weight percent. The powder blend is cooled to a temperature sufficient for safe handling (less than about 65°C) and transported to suitable extrusion equipment.

Please replace Table 1 on page 25 with the following rewritten Table 1:

Table 1. General Description and Source of Components Used in the Examples

Component	Source (Company)
Chlorinated vinyl resins	Polyvinyl Chloride - PVC; "OXY 200" (Oxychem), "BCP - 57" (Borden), Geon 110x450 Molecular weight grades: K50, K57, K62, K67
Thermal Stabilizers	ADVASTAB® TM-181 (Rohm and Haas) MARK 1915 tin thermal stabilizer for foam (Witco, Hahnville, LA)
Lubricants	CaSt - Calcium Stearate/regular - (Witco, Hahnville, LA) Wax 165 - paraffin wax HOSTALUB XL-165 (Clariant) AC629A - oxidized polyolefin wax (Allied-Signal) LOXIOL G60 - neutral dicarboxylic acid ester of unsaturated fatty alcohols (Henkel)
High MW Polymer Processing Aids	PARALOID® K175, PARALOID® K400 (Rohm and Haas), HPPA-W, HPPA-P (see text below)
Cellulosic Materials	Wood Flour - WF, 80 mesh (American Wood Fibers), aspect ratio = 3 to 1 (length to width)
Mineral Fillers	OMYACARB UFT CaCO3 - Calcium Carbonate, 1.0 micron mean PS, (Omya, Inc.)
Optional Impact Modifiers	IM-W, IM-P (see text below)
Optional Pigments	TIPURE® - TiO2 - titanium dioxide (DuPont)
Optional Blowing Agents	AZO (Uniroyal AZRV grade, Hughes Industrial HRVP33 grade); NaHCO3 - Sodium Bicarbonate (Dwight and Church)

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Please replace Table 2 on page 27 with the following rewritten Table 2:

TABLE 2

	Reference Ex. 1		Ex. 2	
Components	**phr**	**%**	**phr**	**%**
PVC (OXY 200)	100.00	87.15	100.00	47.46
AZRV	0.65	0.57	1.20	0.57
Mark 1915	1.50	1.31	1.50	0.71
CaSt	1.20	1.05	2.20	1.04
Wax 165	0.80	0.70	1.60	0.76
AC629A	0.10	0.09	0.20	0.09
K175	0.50	0.44	1.00	0.47
K400	6.00	5.23	11.00	5.22
TiO2	1.00	0.87	0.00	0.00
CaCO3	3.00	2.61	12.00	5.70
Wood flour	none	none	80.00	37.97
TOTAL LUBRICANTS	2.10	1.84	4.00	1.89
TOTAL HIGH MW POLYMER PROCESSING AIDS	6.50	5.67	12.00	5.69
TOTAL COMPONENTS	114.75	100.00	210.70	100.00
Foam Density (g/cc)	0.69		0.95	
Foam Extrudate:				
Surface Quality	good		good	
Edge quality	good		good	

Please replace the heading, four (4) consecutive paragraphs, and Table 3, on pages 28 and 29, with the following rewritten heading, four (4) consecutive paragraphs, and Table 3:

Comparative Examples 1 - 5 and Examples 6 - 8
Effect of Varying Amounts of Total Lubricants and High MW Polymer Processing Aids

The following comparative examples 1 - 5 and examples 6 - 8 show that good quality extrudates having smooth surfaces and edges are obtained when both the total weight percentage of lubricants and high MW polymer processing aids is greater than about 1.5, and 3.5 weight percent, respectively. Powders were extruded into sheet using a plastics processing KMDL extruder at the following conditions: (BZ1 / BZ2 / D / Screw Oil = 185 / 180 / 185 / 170°C). Appearance of the comparative extrudates are provided in Table 3 below.

Observations of these comparative results show very rough surface and edge quality for Comparative Example 1, and that further increasing CaSt levels did not affect surface or edge quality (Comparative Example 2). Furthermore, although increasing paraffin and PE wax improved surface quality, edge quality became worse (Comparative Example 3). Comparative Example 4 shows that increasing all wax levels had no visual improvement over Comparative Example 3, however it gave lowest extrudate density and highest output rates.

High MW polymer processing aids are beneficial in maintaining good melt strength in CVR/CM compositions. As shown in these examples, the total weight percentage of high MW polymer processing aids should be maintained to at least that used in standard PVC formulation on a weight percentage basis as the wood flour level is increased to have sufficient melt strength to process the PVC / wood flour composite (as shown in these examples).

These examples show that increasing just the total lubricants or just the total high MW polymer processing aids is not sufficient to give good melt flow and surface qualities. Both need to be increased to provide a good balance of processing properties.

Table 3: Effect of Varying Amounts of Total Lubricants and High MW Polymer Processing Aids

Component, wt. %	Comp. Ex. 1	Comp. Ex. 2	Comp. Ex. 3	Comp. Ex. 4	Comp. Ex. 5	Ex. 6	Ex. 7	Ex. 8
PVC (BCP57)	49.81	49.57	49.62	49.37	49.12	48.40	47.71	47.04
AZRV	0.32	0.32	0.32	0.32	0.59	0.58	0.57	0.56
Mark 1915	0.75	0.74	0.74	0.74	0.74	0.73	0.72	0.71
CaSt	0.60	1.09	0.60	1.09	1.08	1.06	1.05	1.03
Wax 165	0.40	0.40	0.74	0.74	0.74	0.73	0.72	0.71
AC629A	0.05	0.05	0.10	0.10	0.10	0.10	0.10	0.09
K175	0.25	0.25	0.25	0.25	0.49	0.48	0.48	0.47
K400	2.99	2.97	2.98	2.96	2.95	4.36	5.73	7.06
CaCO3	4.98	4.96	4.96	4.94	4.91	4.84	4.77	4.70
Wood flour	39.85	39.65	39.69	39.50	39.29	38.72	38.17	37.63
TOTAL LUBRICANTS	1.05	1.54	1.4	1.93	1.92	1.89	1.87	1.83
TOTAL HIGH MW POLYMER PROCESSING AIDS	3.24	3.22	3.23	3.21	3.44	4.84	6.21	7.53
TOTAL	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Extrusion Output rate (lbs/hr)	6.6	7.0	6.2	6.9	7.3	7.9	7.1	7.1
Linear rate (ft/hr)	33.2	36.9	33.8	40.0	37.1	39.6	37.5	40.6
Foam Extrudate: Density (g/cc)	1.02	0.95	1.00	0.94	1.12	0.92	0.94	0.91
Surface Quality	Very Rough	Very Rough	Rough	Rough	Slightly Rough	Almost Smooth	Smooth	Hard, Very Smooth
Edge quality	Very Rough	Very Rough	Very Rough	Very Rough	Slightly Rough	Almost Smooth	Smooth	Hard, Very Smooth

Please replace the heading beginning on page 30, line 1, with the following rewritten heading:

Examples 9 - 12

Effect of Increasing Amount of Cellulosic Material While Maintaining Relative Amount of Total Lubricants and High MW Polymer Processing Aids

Please replace Table 4 on page 31 with the following rewritten Table 4:

Table 4: Effect of Increasing Amount of Cellulosic Material

Component, wt. %	**Ex. 9**	**Ex. 10**	**Ex. 11**	**Ex. 12**
PVC (BCP57)	60.48	53.19	47.48	42.90
AZRV	0.57	0.59	0.57	0.56
Mark 1915	0.91	0.80	0.71	0.64
CaSt	1.09	1.06	1.04	1.03
Wax 165	0.73	0.69	0.71	0.69
AC629A	0.09	0.11	0.09	0.09
K175	0.45	0.48	0.47	0.47
K400	5.44	5.32	5.22	5.15
CaCO3	6.05	5.85	5.70	5.58
Wood flour	24.19	31.91	37.99	42.90
TOTAL LUBRICANTS	1.91	1.86	1.84	1.81
TOTAL HIGH MW POLYMER PROCESSING AIDS	5.89	5.80	5.69	5.62
TOTAL	100.00	100.00	100.00	100.00
Extrusion Output rate (lbs/hr)	8.0	7.3	7.2	6.6
Linear rate (ft/hr)	46.3	43.9	45.0	37.2
Foam Extrudate: Density (g/cc)	0.95	0.91	0.96	1.03
Surface Quality	Smooth	Smoother →		Very Smooth
Edge quality	Smooth	Smoother →		Very Smooth

Please replace Table 5 on page 32 with the following rewritten Table 5:

Table 5 : Effect of Varying Molecular Weight of Vinyl Chloride Resin

Component, wt. %	**Ex. 13**	**Ex. 14**	**Ex. 15**	**Ex. 16**
PVC (K67)	47.48	-	-	-
PVC (K62)	-	47.48	-	-
PVC (K57)	-	-	47.48	-
PVC (K50)	-	-	-	47.48
AZRV	0.57	0.57	0.57	0.57
Mark 1915	0.71	0.71	0.71	0.71
CaSt	1.04	1.04	1.04	1.04
Wax 165	0.71	0.71	0.71	0.71
AC629A	0.09	0.09	0.09	0.09
K175	0.47	0.47	0.47	0.47
K400	5.22	5.22	5.22	5.22
CaCO3	5.70	5.70	5.70	5.70
Wood flour	37.99	37.99	37.99	37.99
TOTAL LUBRICANTS	1.84	1.84	1.84	1.84
TOTAL HIGH MW POLYMER PROCESSING AIDS	5.69	5.69	5.69	5.69
TOTAL	100.00	100.00	100.00	100.00
Extrusion Output rate (lbs/hr)	6.9	6.7	7.0	7.5
Linear rate (ft/hr)	35.1	35.4	38.5	43.2
Extrudate: Density (g/cc)	1.14	1.08	0.99	0.97
Surface Quality	Very Smooth	← Smoother		Smooth
Edge quality	Very Smooth	← Smoother		Smooth

Please replace Table 6 on page 33 with the following rewritten Table 6:

Table 6: Varying CVR/CM Foam Formulation

Component	Ex. 17, "Outward Free Foam Formulation"		Ex. 18, "Inward Foaming Formulation"	
	phr	wt. %	phr	wt. %
PVC (K57)	100.00	47.46	100.00	46.86
AZO	1.20	0.57	0.40	0.19
NaHCO3	-	-	2.80	1.31
Mark 1915	1.50	0.71	-	
TM181	-	-	1.50	0.70
G60	-	-	1.00	0.47
CaSt	2.20	1.04	1.00	0.47
Wax 165	1.60	0.76	1.50	0.70
AC629A	0.20	0.09	0.20	0.09
K175	1.00	0.47	2.00	0.94
K400	11.00	5.22	11.00	5.15
TiO2	0.00	0.00	2.00	0.94
CaCO3	12.00	5.70	10.00	4.69
Wood flour	80.00	37.97	80.00	37.49
TOTAL LUBRICANTS	4.0	1.89	3.7	1.73
TOTAL HIGH MW POLYMER PROCESSING AIDS	12.0	5.69	13.0	6.09
TOTAL	210.70	100.00	213.40	100.00
Foam Extrudate: Density (g/cc)	0.88		0.63	
Surface Quality	Good		Good	
Edge quality	Good		Good	

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Please replace the paragraph beginning on page 34, line 10, with the following rewritten paragraph:

The addition of wood flour generally lowers the bulk density and reduces powder flow. The addition of CaCO3 increases the bulk density and improves powder flow to a point where the PVC/WF blend can be extruded directly from the powder blend. As an example, a mixture consisting of 50 weight percent wood flour and 50 weight percent of a PVC foam powder composition (e.g., PVC, thermal stabilizer(s), blowing agent(s), lubricant(s), high MW polymer processing aid(s), and less than about 1.5% filler) was prepared according to the general process above. This PVC/WF powder blend composition had a powder bulk density of 0.342 g/cc, but it did not flow according to the funnel flow test in ASTM D 1895-96. A mineral filler (calcium carbonate) was added to the just described powder blend composition, such that the weight ratio of PVC foam compound / wood flour / CaCO3 blend was 48 / 48 / 4. The resulting powder blend was a free flowing powder having a very good funnel flow rate of 30 seconds and had a bulk density of 0.363 g/cc.

Please replace Table 7 on page 35 with the following rewritten Table 7:

Table 7: General Process for Preparing CVR/CM Compositions in Examples 20 to 22

Step #	Component Added at This Step	Addition Temp., °C	Blender Speed, rpm
1	PVC Resin	23	1000
2	Tin Stabilizer	50	2000
3	High MW Polymer Processing Aid(s): Acrylic Lubricating Processing Aid	70	1000
4	Acrylic Processing Aid	70	2000
5	Wood Flour, 80 mesh	85	1000
6	Acrylic Impact Modifier	85	2000
7	25 % of Calcium carbonate (filler) charge	90	2000
	Lubricant(s): Neutral dicarboxylic acid ester of saturated fatty alcohols	95	2000
	Calcium stearate	95	2000
	Paraffin Wax	95	2000
	Oxidized LDPE Wax	95	2000
8	25 % of Calcium carbonate (filler) charge	97	2000
	Chemical Blowing Agent	100	1000
9	50 % of Calcium carbonate (filler) charge	110	1000
10	Begin cooling blend by circulating water through jacket	110 → 55	1000
11	Remove contents from blender	< ca. 55	0

Please replace the heading beginning on page 35, line 11, with the following rewritten heading:

Preparation of a Water-Based Dispersion of a High MW Polymer Processing Aid (HPPA-W)

Please replace the heading and paragraph beginning on page 37, line 1, with the following rewritten heading and paragraph:

Preparation of a Powdered High MW Polymer Processing Aid (HPPA-P)

A portion of the HPPA-W dispersion was spray-dried to form a powdered high MW polymer processing aid, which is denoted HPPA-P.

Please replace the four (4) consecutive paragraphs beginning on page 38, line 6, and ending on page 38, line 32, with the following rewritten four (4) consecutive paragraphs:

Powder blend compositions prepared according to the process in Table 7 wherein the high MW polymer processing aids and/or impact modifiers were provided as water based dispersions are described in Table 8.

These examples show that impact modifiers and/or high MW polymer processing aids can be added in either emulsion or powder form for preparing CVR/CM powder blends. Example 20 is a reference example for comparing results obtained under equivalent conditions adding a high MW polymer processing aid powder. Example 21 demonstrates that the high MW polymer processing aid can be added as an emulsion.

Surprisingly, addition of impact modifiers and/or high MW polymer processing aids provided some unexpected additional advantages in wood flour-PVC blends. In Example 22 addition of both components, while resulting in relatively high moisture contents in the blend (3.09 %), gives a high loose bulk density value for the powder (0.487 g/cc), a fast powder blend funnel flow value (12.1 seconds), a high output rate (6.1 kg/hour, presumably due to the improved powder properties) and a very low density foamed product (0.59 g/cc). Finally, edge and surface quality and extrusion performance were good, in spite of the high level of initial moisture that had to be removed from the mix of emulsions added (some 13.40 %) during the blending and extrusion steps.

Initial moisture values were based on values for moisture of the wood flour (7.11%), impact modifier moisture (47% for water-based dispersion, 0% for powder) and high MW polymer processing aid moisture (48.4% for water-based dispersion, 0% for powder). Loose bulk density was determined by the number of grams powder occupying a 100 cc graduated cylinder. Funnel flow rate measured the rate of flow of powder through a standard funnel according to ASTM D 1895-96. Final moisture of the powder blends was measured by drying to a constant weight.

Please replace the paragraph beginning on page 39, line 10, with the following rewritten paragraph:

In a variation of Example 22, the wood flour was added as step 3 after adding the thermal stabilizer and before adding the high MW polymer processing aid. This resulted in a free-flowing powder composition having a lower moisture content of 1.35%.

Please replace Table 8 on page 40 with the following rewritten Table 8:

TABLE 8	Example 20		Example 21		Example 22	
Components - Product Used	**% of total as dried**	**% of total water**	**% of total as dried**	**% of total water**	**% of total as dried**	**% of total water**
PVC Resin - (Geon 110x477, K50)	42.02	-	42.02	-	38.76	-
Tin Stabilizer - (Advastab TM-181)	0.63	-	0.63	-	0.58	-
Neutral dicarboxylic acid ester of saturated fatty alcohols - (Loxiol G60)	0.42	-	0.42	-	0.39	-
Calcium stearate - (Regular)/ Witco	0.63	-	0.63	-	0.58	-
Paraffin Wax - Hostalub XL-165	0.63	-	0.63	-	0.58	-
Oxidized LDPE Wax - AC629A	0.13	-	0.13	-	0.12	-
TOTAL LUBRICANTS	1.81	-	1.81	-	1.67	-
High MW Polymer Processing Aid Paraloid K175/ Rohm and Haas	1.26	-	1.26	-	1.16	-
High MW Polymer Processing Aid - Dry Powder HPPA-P	6.30	-	-	-	-	-
High MW Polymer Processing Aid - Water-Based Dispersion HPPA-W	-	-	6.30	5.37	5.81	4.95
TOTAL HIGH MW POLYMER PROCESSING AIDS	7.56	-	7.56	-	6.97	
Impact Modifier - Water-Based Dispersion IM-W	-	-	-	-	7.75	5.47
Chemical Blowing Agent - AZO	0.17	-	0.17	-	0.16	-
Physical Blowing Agent - Sodium Bicarbonate	1.18	-	1.18	-	1.09	-
Calcium carbonate (filler) - Omyacarb UFT	8.40	-	8.40	-	7.75	-
Wood Flour, 80 mesh	38.24	2.98	38.24	2.98	35.27	2.98
TOTAL COMPONENTS:	100.00	2.98	100.00	8.35	100.00	13.40
POWDER RESULTS:						
Powder Moisture %, after blend processing:	0.92		0.73		3.09	
Powder Bulk Density (loose, g/cc):	0.427		0.425		0.487	
Powder Funnel Flow Rate (seconds):	17.1		15.0		12.1	
FOAM EXTRUDATE RESULTS:						
Output Rate (lb/hr)	not measured		11.4		13.4	
Density (g/cc):	0.63		0.60		0.59	
Quality:	Good surface and edge		Good surface and edge		Good surface and edge	

Please replace Table 10 on page 42 with the following rewritten Table 10:

TABLE 10

Ex.	Component - Order of Addition	Addition Temp., °C	Blender Speed	Time, minutes
23	PVC / BA / Wood Flour	23	low	7
	TM181	52	high	4
	Lubricants	66	high	4
	High MW Polymer Processing Aids	77	high	7
	$CaCO_3$	104	low	5
	("BA" = blowing agents)	Cool to 77	Total Time	27
24	PVC / BA	23	low	8
	TM181	52	high	8
	Wood Flour / Lubricants	93	high	10
		Cool to 61		
	High MW Polymer Processing Aids	102	high	2
	$CaCO_3$	104	low	3
		Cool to 77	Total Time	31
25	PVC / BA	RT	low	8
	TM181	52	high	2
	Lubricants	66	high	1
	High MW Polymer Processing Aids	77	high	3
	$CaCO_3$	88	high	5
	Wood Flour	91	high to low	18
		Cool to 61, Heat to 104		
		Cool to 77	Total Time	37

Please replace Table 11 on page 43 with the following rewritten Table 11:

TABLE 11

Ex.	Component - Order of Addition	Addition Temp., °C	Blender Speed	Time, minutes
26	PVC / BA	23	low	6
	TM181	52	high	7
	Wood Flour / Lubricants	93	high	10
		Cool to 60		
	High MW Polymer Processing Aids	102	high	3
	IM-P	104	high	1
	$CaCO_3$	107	low	3
		Cool to 77	Total Time	30
27	PVC	RT	low	4
	TM181	52	high	6
	Wood Flour	93	high	1
		Cool to 61		
	IM-W	66	low	2
	Lubricants	74	high	15
	Blowing Agents	102	high	3
	High MW Polymer Processing Aids	104	high	5
	$CaCO_3$	107	low	4
	Drop Batch	Cool to 77	Total Time	37